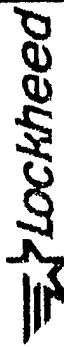


8, 2, 1, 6

Target Designation from Space



- Target Designation interactively by the Battlefield Commander
- A Constellation of Distributed Imaging and Designating Satellites
 - Can be Directly controlled by the Front Line Commander
 - Give Real Time Viewing beyond the FEBA
- The Battlefield Commander commands a specific area to view
 - The image is presented in both Visible and MWIR (3-5µm) at low resolution
 - The critical are is then selected and the satellite switches to High resolution mode
 - The specific target is identified and a critical are is selected by a cursor on a screen
 - The designation is a laser spot <1 meter in diameter and is modulated with an encoded signal
- This system will enable the soldier to command laser guided weaponry and remotely observe the effects

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Accession Number: 6323

Title: Target Designation From Space

Corporate Author Or Publisher: Lockheed Corporation

Report Prepared for: Ballistic Missile Defense Organization, DE, Washington, DC

Comments on Document: From BMDO/DE

Abstract: Briefing handout. The target designation is determined by the battlefield commander from a constellation of distributed imaging and designating satellites. The commander can view a specific area at various wavelengths and resolutions and command laser guided weaponry and remotely observe the effects.

Descriptors, Keywords: target designation space battlefield commander constellation image designation satellite visible MWIR laser guided weapon remote target confirmation daytime night damage assessment

Pages: 7

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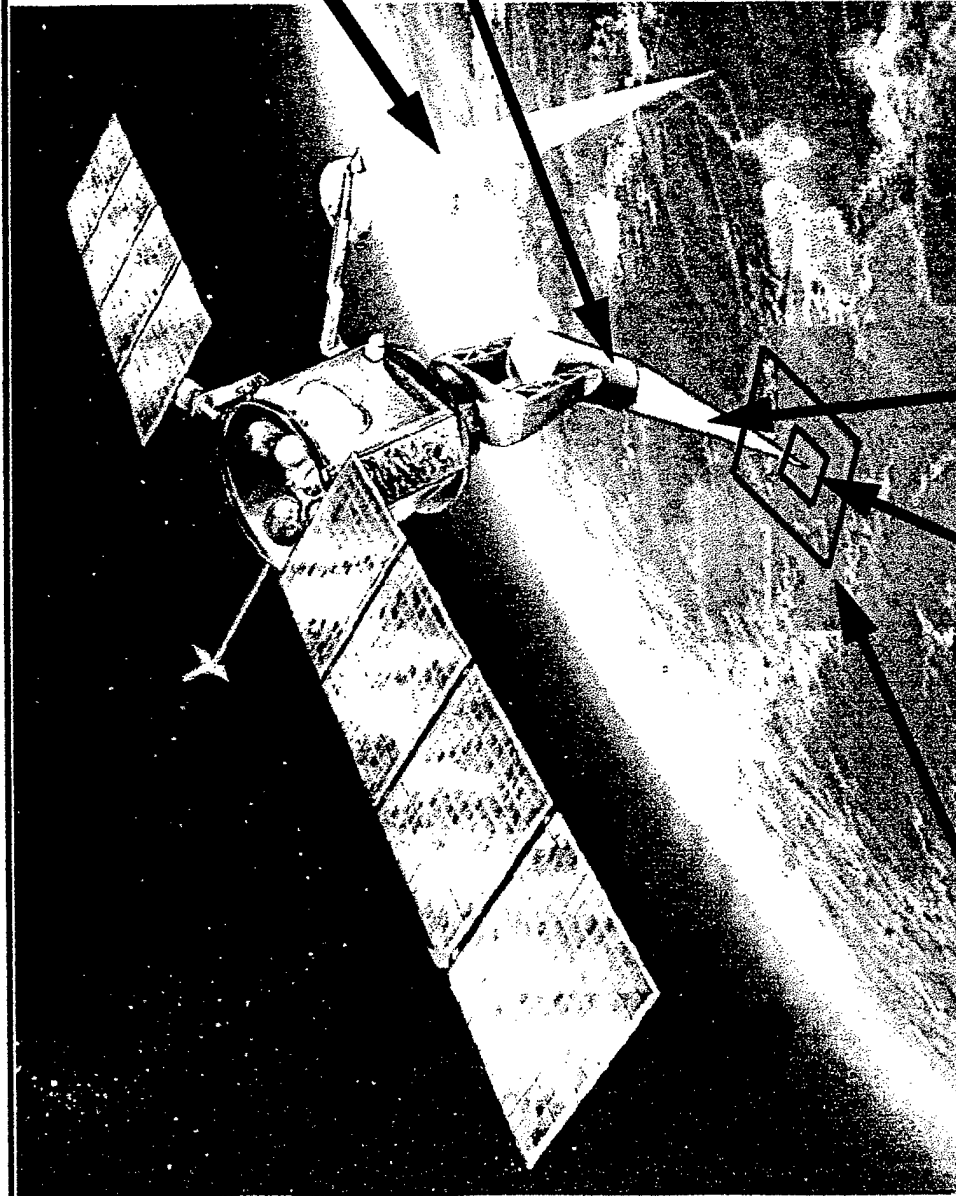
Document Type: HC

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Source of Document: BMDO

Space Based Target Designation Artist Concept



Direct video link to
Battlefield
Commander

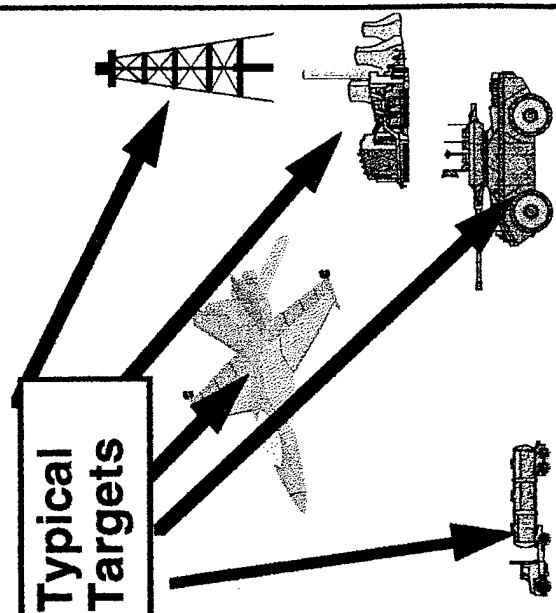
Gimbaled
Search Set with
Designator Laser

Typical
Targets

Laser Beam
Stabilized at
Target Aimpoint

Wide Area Imaging

Narrow Area Imaging

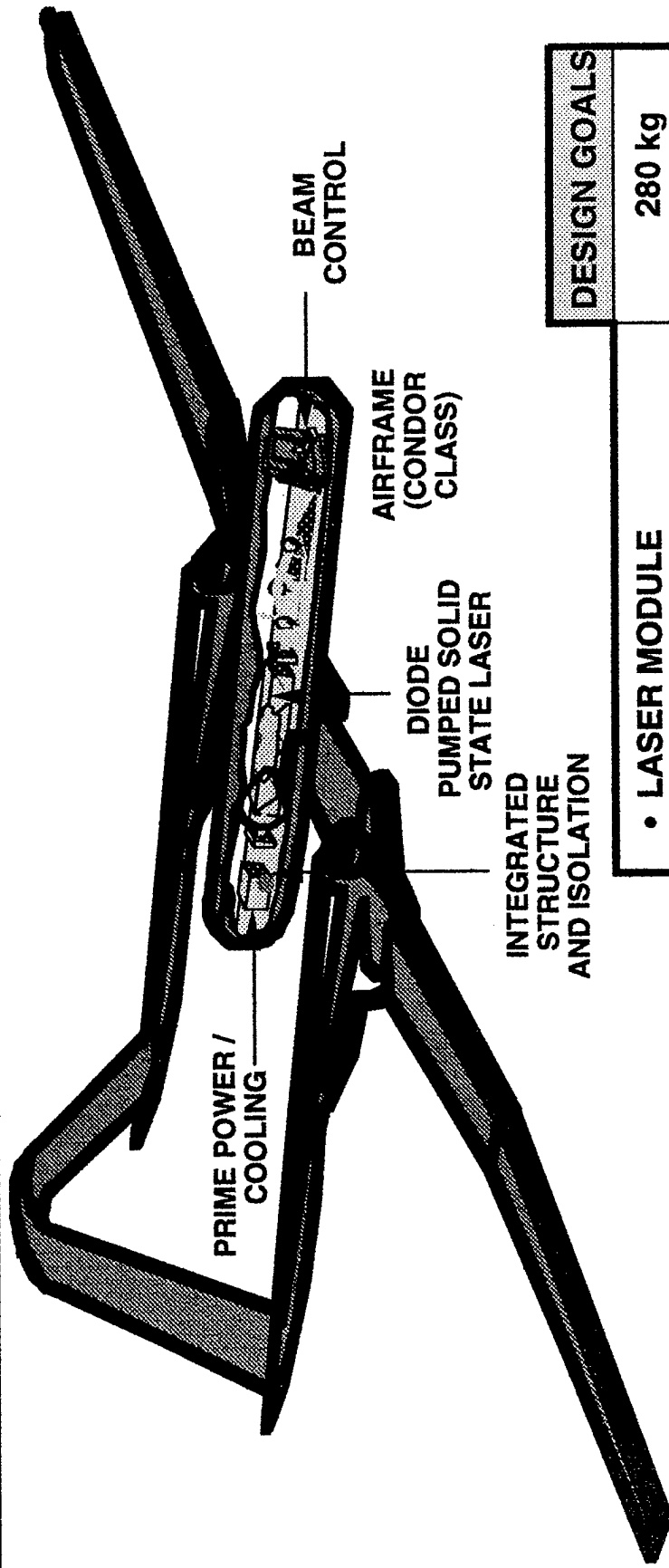


Paths to "Gunsights in the Sky"



- Use UAV with GLLD type designator (100mJoules @ 20 pps)
- Use UAV for Cruise Missile Detection with Meter Class Optics
- UAV @ 20 Km Altitude would cover ~50 Km Diameter Tactical Area
- Cruise Missile Detection & Handover with precision location ~1M

Defender Weapon Configuration could be also used for Target Detection and Designation



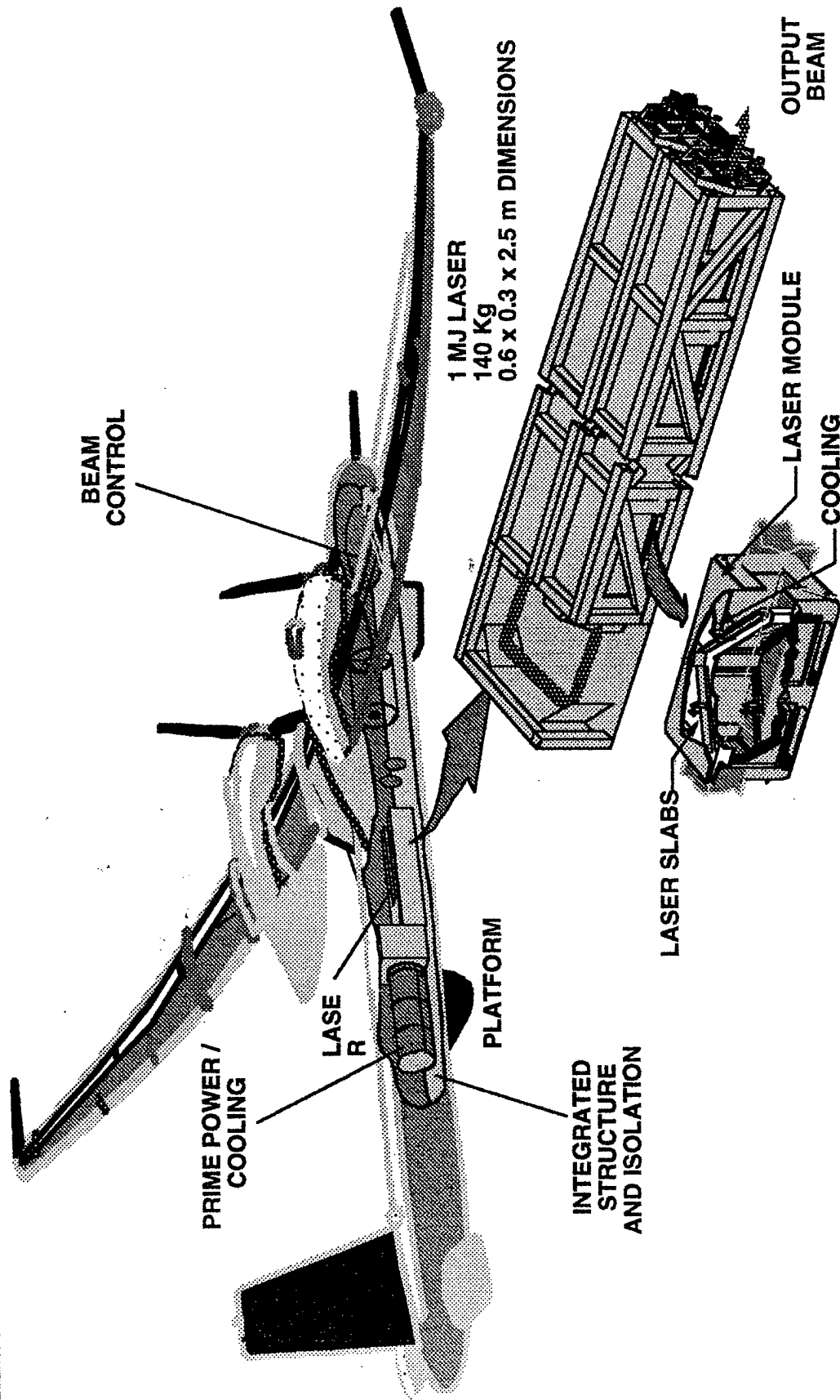
DESIGN GOALS

- LASER MODULE
- ELECTRICAL SYSTEM
- COOLING SYSTEM
- BEAM CONTROL
- TARGET ACQUISITION
- BM/C₃

280 kg
700
700
280
20
20
2000 kg

OPERATES ABOVE TROPOPAUSE
– NO ADAPTIVE OPTICS/BEACON

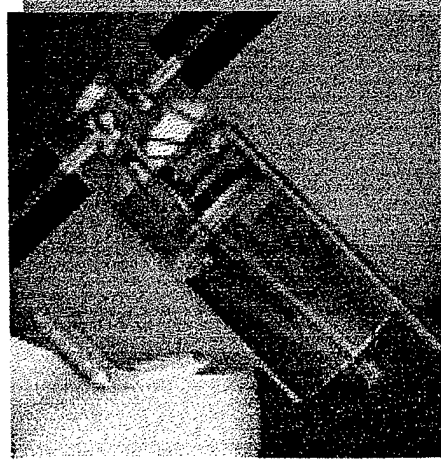
Defender Weapon Platform is OverKill for High Altitude Target Detection and Designation but is Available



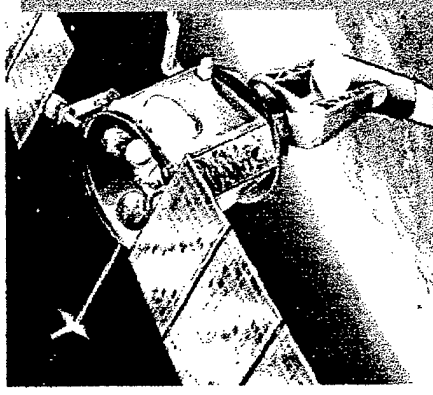
Approach



- Integrate BMDO's ATP Technology into developing commercial programs
- Global communications will provide the capability for real time video links and a constellation of small spacecraft
- Video compression chip sets are now available to provide reasonable downlink requirements
- Existing ATP Program is developing
 - Optics
 - Gimbal Pointing Systems
 - Designator Laser Technology
 - Tracking and Precision Pointing Control



High Altitude >1000Km
Using BMDO Technology for Large Optics
Better Resolution & Stabilization that
Operational Systems Requires
Develops Requirements for Operational
System



Low Altitude ~500 Km
Using BMDO Technology
Resolution & Stabilization that Operational
Systems Requires
Validates Operational System Concept
First Element in System

Military Relevance



- Space Based Target Designation will help the Soldier in the following ways
 - Remote Targeting
 - Confirmation of Target
 - Day/Night Capability
 - Damage Assessment
 - Constellation has 24 Hour continuous Coverage and some Stereo Capability
 - Integrates Soldier Directly into Space Assets